SILVERTIP PIPELINE RELEASE

Approved Treatment Methods

24 August 2011

APPROVED TREATMENT METHODS

This document lists and defines basic treatment methods that may be recommended in the Riverine SCAT Form issued by the SCAT Program. Regardless of the segment or shoreline, the use of these methods should follow the descriptions provided below. If changes to these methods are required for a specific segment, the changes will be clearly defined in the segment-specific Riverine SCAT Form.

Treatment Methods (defined below):

1. Cutting of Vegetated and Shrub/Scrub Shorelines, Floodplains and Riverbanks (non-high use public access areas)
2. Dead (Unattached) Oiled Vegetation and Small Oiled Debris Removal
3. Large Woody Debris/Other Hard Surfaces
4. Soil/Sediment Removal
5. Sorbent Use Guidelines
6. Heavy Equipment Oiled Debris Removal
7. Natural Attenuation
8. Refer to Technical Advisory Group
9. Treatment with Dust Fixative
10. Light Mechanical Equipment Use in the Riparian Zone

General Guidelines That Should Be Followed With All Methods:

- Work from "clean" areas to "dirty" areas
- Minimize removal of uncontaminated materials to minimize waste
- Resource Advisors (READS) from the resource agencies (USFWS/BLM/EPA/MFWP) ***may*** be embedded with operations teams to ensure these guidelines are followed and ecological concerns are addressed.

1. Cutting of Vegetated and Shrub/Scrub Shorelines, Floodplains and Riverbanks (non-high use public access areas)

This method applies to ground cover and shrub vegetated shorelines that are not maintained and are natural areas. Vegetated shorelines not covered by this method include maintained ditch banks, mowed areas, pastures, and fields.

Resource Advisors (READS) from the resource agencies (USFWS/BLM/EPA/MFWP) will be embedded with operations teams to ensure these guidelines are followed and ecological concerns are addressed.

The cleanup Guidelines for Natural Vegetated and Shrub/Scrub shorelines are as follows:

- Oiled vegetation up to one inch diameter that has more than an oil film may be cut. A film is a light stain that cannot be rubbed off on casual contact. Oil that can be easily rubbed off with light contact may be cut. This oil represents a risk to wildlife. A simple test is to sweep a gloved hand through the oiled vegetation. If oil comes off on the glove, the vegetation should be cut. If no oil comes off on contact, vegetation may remain unless the landowner wants it removed with concurrence from the RP.
- Do not walk on or trample oiled vegetation that has not been cut. Cut at the leading edge of oiled vegetation, remove the oiled vegetation, and continue cutting on the leading edge.
- Do not cut in areas of mud where boots penetrate into oiled soil surface. Un-oiled soil surface may be walked on but excessive trampling of vegetation such that it causes erosion should be avoided. Some areas may be left until the river recedes and the soil surface becomes firm. The objective is not to drive oil into the soil surface where it may persist.
- Stems of grasses should be cut no less than 5 cm (2 inches) above the base, and the root-rhizome mass must remain undisturbed and intact buried in the substrate. Excessive vegetation cutting and/or substrate removal can lead to erosion and delayed re-growth and recovery.
- Mechanical mowing or harvesting machinery may only be used in areas that are relatively dry and/or the soil surface is firm without more than a film or stain of oil on the soil surface. The tire ruts of mechanical equipment should not penetrate more than 2-3 inches into the soil surface. If there is no oil on the soil surface, tire penetration can exceed 2-3 inches, but should not result in erosion.
- All cut oiled vegetation should be removed rapidly such that it cannot become mobile in storm or wind events.
- Relatively larger plants up to 1 inch in diameter (small willow or Russian olive saplings) should not be cut near the ground as they present a safety hazard for people and pets. Oiled leafy vegetation may be removed from the sapling and, if necessary, stems should be trimmed **at chest level** so they cannot harm workers or pets.
- Do not walk on downed oiled vegetation to access other areas.

Ecological Concerns

- Resource advisors (READS) will review proposed flushing area prior to flushing to assure bird nesting locations will not be affected.
- Stop cutting when there is evidence of soil erosion.
- Stop cutting if cutting is disturbing any wildlife such as nesting birds.
- Use one point of access and egress whenever possible.
- Do not walk on oiled grass that has not yet been cut.
- If access through oiled vegetation or soils is unavoidable, a sorbent path, “snow fence,” boardwalk, or some other type of ground protection may be established in consultation with SCAT and/or READs.

When the oil is easily transferable to wildlife, cutting is approved. SCAT recommends cutting in the following situations:

Cut – "surgical trimming" from vessel or standing on unoiled soil

Cut – remove band standing on un-oiled soil along flooded pathways

Cut to within 2 inches of base (complete removal) – from vessel or standing on un-oiled soil

Cutting is not necessary when access may create more harm than good, and the oil presents no risk to wildlife and will degrade naturally in a few weeks. SCAT does not recommend cutting in the following situations:

Do not cut – "silted" lightly oiled and very lightly oiled vegetation

Do not cut – "silted" lightly oiled and very lightly oiled vegetation

Do not cut – "silted" lightly oiled and very lightly oiled vegetation

NOTE: Cutting along pathways and walkways in high public access areas (e.g., Norm's Island) may include all oiled vegetation.

2. Dead (Unattached) Oiled Vegetation and Small Oiled Debris Removal

Downed oiled vegetation and woody debris (<4-inch diameter) on the properties identified in this STR should be removed as follows:

- Oiled debris with a diameter less than 4 inches should be removed.
- Large oiled woody debris will be cleaned by sorbent wiping or flushing.
- Oiled debris may be cut or chipped with machinery for ease of removal with accompanying air monitoring and job safety analysis (JSA).
- Debris accumulations may contain trapped pooled oil and sorbent containment should be available and in place in these situations.
- Dead oiled vegetation may be raked from adjacent areas to avoid trampling in oiled vegetation. Raking should not be so aggressive that it tears out roots and rhizomes of vegetation.
- Small oiled debris accumulations may also be "herded" for ease of collection by spraying ambient river water with small pumps.
- Stain or film on debris that does not wipe off may remain. If oiled debris produces sheen or otherwise wipes off easily on contact, it may be removed.

Ecological concerns

- Stop when free or mobile oil is found to establish containment and collection. Use sorbents first so no free oil is released.
- Resource advisors from the USFWS will attend site work for monitoring purposes and will consult for wildlife issues.
- Do not disturb wildlife.
- Use one point of access and egress whenever possible.

Examples of small oiled debris for removal are as follows:

Flushing should be attempted first in situations with coated vegetation and oiled sediments. Do not rake vegetation too aggressively, as it impedes recovery and increases persistence of oil in sediment.

3. Large Woody Debris/Other Hard Surfaces

Large woody debris (>4 inches) that is either standing or downed and other oiled hard surfaces on the properties identified in this STR should be cleaned as follows:

- Large oiled woody debris will be cleaned by sorbent wiping or flushing. Dead trees or downed trees may also be cleaned with scraping tools.
- Live standing oiled trees should also be cleaned, being careful not to break the bark surface. Flushing and/or wiping with sorbents should be employed. Do not use scraping tools on live trees.
- Other hard surfaces can be cleaned with sorbent wiping, scraping tools, or flushing as described above.
- No cleaning agents are approved for use. The use of cleaning agents must be approved by the UC.

Note: Large downed oiled woody debris may be cut and removed on private property with landowner permission, in consultation with ExxonMobil.

Addendum to ATM 3 (8/18/2011)

In cases where wood chipping equipment and equipment that can be used in the riparian zone to move large woody debris (see ATM 10) are available at a site, Operations may choose to chip and remove from site oiled woody debris between 4 inches and 12 inches in diameter. Stained or clean material may be cut into the largest possible manageable pieces to facilitate access to oil.

- *In choosing to chip and remove from site oiled woody debris between 4 inches and 12 inches in diameter, Operations must take into consideration waste generation issues and the effect the additional removal may have on habitat structure.*
- *This only applies to oiled woody debris, where the oil is removable (per the glove test described in ATM 1). Clean or stained woody debris of all sizes should not be chipped or removed from the site.*
- *If only a small portion of a large piece of woody debris is oiled and the remainder is clean or stained, to the extent practical, the oiled material can be cut from the larger piece, chipped, if appropriate, and removed.*

Ecological concerns

- Do not trample oil into the soil surface.
- Resource advisors from the USFWS will attend site work for monitoring purposes and will consult for wildlife issues.
- Do not disturb wildlife.
- Use one point of access and egress whenever possible.
- Do not use cleaning agents.

Examples of oiled large debris and hard surfaces that may be scraped or wiped:

Note: There may be very little effectiveness in wiping oil off trees. Cleaning the live trees in the photo (on left) may be attempted, but there should be no scrubbing of bark. If oil does not come off easily, stop.

Addendum (Best Management Practices for Woody Debris Redistribution following Cleanup Operations, dated 8/18/2011)

Woody debris remaining at the site may consist of the following:

- *Clean woody debris of any size*
- *Stained woody debris of any size*
- *Coated or sticky debris greater than 4 inches in diameter that has been appropriately treated per ATMs*

As work proceeds through an area, woody debris that is not being removed for disposal should be placed back in a manner that generally replicates the natural setting.

- *Debris piles – debris should be placed to resemble a natural woody debris pile.*
  - *In general, pile clean debris as close to the location and orientation of the original debris pile as possible*
  - *If necessary to displace a pile, place new pile down-slope (closer to river)*
  - *Large branches or tree trunks should remain in place where possible; smaller branches should be stacked or woven around the large debris*
- *Other woody debris – clean woody debris should be scattered in a manner that replicates the natural setting.*
- *Minor amounts of large woody debris may be utilized later, if needed, to discourage future access and support rehabilitation of roads and trails.*

General Rules:

- *If the debris pile is distributed around trees and shrubs, an effort should be made to minimize damage to live vegetation during reconstruction of the debris pile.*
- *Do not stack wood in organized piles that do not blend into the natural landscape.*
- *Do not throw pieces of wood anywhere that you cannot see them land. Be aware of other workers or hazards in your immediate area.*

4. Soil/Sediment Removal

Sediment removal is typically not desired but may in some instances be beneficial. Sediment removal may occur in the following:

- Pooled or thick oil (>1 cm thick) on the sediment surface may be scraped manually or mechanically, being careful to not scrape below the oiled horizon.
- Sediment/soil removal should be done only in heavily oiled areas with no vegetation. In vegetated areas with thick oil, flushing may be attempted to herd the oil into containment and collection. Flushing may also be attempted in non-vegetated areas provided it causes no substantial erosion.
- While removal of native soils should be avoided when possible, oily silt deposited by floodwaters may be removed manually or mechanically.

Ecological concerns

- Do not trample oil into the soil surface. If mechanical removal is used, it should be used on firm ground, and tire ruts should not exceed 2-3 inches.
- Resource advisors from the USFWS will attend site work for monitoring purposes and will consult for wildlife issues.
- Do not disturb wildlife.
- Use one point of access and egress whenever possible.
- Do not use cleaning agents.

Potential site for shallow "surficial" sediment removal with flat shovel or trowel.

5. Sorbent Use Guidelines

Sorbents are defined for this STR as sorbent boom, sweep, pads and snare (pom-poms). When using sorbents, follow the guidelines below:

- Deploy sorbents on the water adjacent to oiled areas that are releasing any oil or heavier sheens (rainbow sheen, brown sheen, black oil). Do not deploy sorbents in silver sheen.
- Sorbent boom and/or snare should be securely deployed to prevent stranding on un-oiled vegetation during storms or wind events.
- Sorbents along exposed shorelines should be checked regularly to prevent stranding or loss of sorbents downstream.
- Sorbents that are water-logged, oiled, or breaking apart must be removed immediately.
- Sorbents may also be deployed by jet boat or airboat where water depths permit.

Ecological Concerns

- Avoid foot traffic that will penetrate into oily mud.
- Avoid walking on oiled soils such that oil is pushed into the subsurface. Walking on un-oiled or very lightly oiled soils is permitted.
- Avoid walking on any oiled vegetation during sorbent boom deployment, maintenance, and removal. One point of ingress and egress.
- If access through oiled vegetation or soils is unavoidable, a sorbent path or "snow fence "boardwalk" or some other type of ground protection may be established in consultation with SCAT and/or READs.

Examples of areas where sorbent use is effective or are being used properly are as follows:

6. Heavy Equipment Oiled Debris Removal

Objective

To identify a strategy for the removal and disposal of terrestrial oily debris via heavy equipment.

Applicable/Designated Areas

The use of heavy equipment will be limited to the terrestrial portion of the Yellowstone River corridor outside of the immediate riparian wetlands. Areas inside the riparian wetlands are sensitive to vehicle use, slow to recover from physical disturbance, and prone to erosion following disturbance of the surface soils. The riparian wetlands targeted for protection are those in low-lying areas that are undisturbed by human activities and are currently in forested flats, wet meadows, emergent scrub/shrub wetlands, and swamps.

Riparian areas where heavy equipment may be used are in agricultural areas, including crop land or fields used for grazing, pasture or paddocks; residential land; or land that has been developed in some manner. Some of these areas have historically been wetland but have been disturbed in some manner such that heavy equipment use will not result in an adverse impact.

Enactment Plan

- Areas of terrestrial oily debris will be identified by the SCAT team and communicated to the designated operations POC.
- After speaking with SCAT, operations POC along with shoreline cleanup READ will determine type of machinery that needs to be used.
- Equipment / machinery (agreed by SCAT) which may include chippers, chainsaws, and earthmoving equipment will be deployed to the **Designated Areas** to collect oily debris. Deployment will be determined by gradient in terrestrial areas where heavy equipment is permitted as judged by the SCAT team.
- Trained employees will collect oily debris with the use of heavy equipment (≤ 20,000 lb.) and place it onto a track truck for transportation. It is important to note that the use of a chainsaw or other tools may be considered by Operations, in order to cut larger debris into manageable pieces.
- Oily debris will be transported to a wood chipper, chipped, and handled in accordance with approved disposal plan.

See Addendum (Best Management Practices for Woody Debris Redistribution following Cleanup Operations, dated 8/18/2011) under ATM 3 above.

Decontamination

Heavy equipment and chipper will be decontaminated as per standard operating procedures currently being utilized in the field. In addition, work area will be prepared to minimize contamination during operation.

Groups Involved

Environmental Planning Unit
Logistics
Operations Chief
Operations POC Site A
Operations POC Site A

7. Natural Attenuation

Where active treatment causes more harm than benefit (not to include economic). No Further Treatment (NFT) may be recommended by SCAT teams for certain areas based on land-owner instructions and/or ecological, archeological, historical, cultural, and/or safety considerations. Typically, but not exclusively, these areas will be characterized by trace or very light oil impacts. Weathering and natural attenuation of the residual oil is expected. Monitoring and sampling of these areas will be conducted as part of the approved Remediation Plan for Downstream Impacted Areas and approved plans for protection of wildlife and historical/cultural resources.

8. Reference Cleanup Recommendation or Decision to Technical Advisory Group

If the SCAT Team identifies a unique situation that the preceding Treatment Methods do not appropriately address, the team may make a recommendation for the situation to be reviewed by the Technical Advisory Group (TAG). This recommendation must be approved by the TAG before it is implemented. The SCAT team may also defer to the TAG to make and approve an appropriate area-specific cleanup recommendation.

9. Treatment with Dust Fixative

Objective

To minimize the spread of oil from living or dead woody materials or non-removable hard materials to wildlife or the surrounding environment in situations where removal is not a viable option.

Excluding live trees and shrubs:

- Fixation should be considered as the last possible alternative to no further treatment.
- SCAT OPS and appropriate agency representatives should be consulted before application.
- SCAT OPS and appropriate agencies will ensure that proper documentation including location is entered into the segment record for all fixation applications.

Applicability

Oil fixation with dust should be considered a treatment method on materials as described in the objective which cannot be removed for reasons such as safety, large equipment is required but not

permitted (see Heavy Equipment Removal Plan), cultural, historical, or other reasons an area should not be disturbed. Examples: live trees stained by oil, large woody debris piles with approximately 5 percent or less oiled area which is not accessible by manual labor or available equipment.

Enactment plan

The purpose is to dust the affected area with a locally available fine clay or silt to coat the oil and create an inert barrier.

Fixative material should be obtained as close as possible to the work site. Fine particle material is required for proper adhesion to oiled surface.

- Fixative material should only be obtained from non-vegetated locations, away from the river banks, which will not have an adverse environmental impact (increase erosion or sedimentation rates).
- Apply the material by sprinkling by hand or with a hand applicator. Do not bury the oiled surface with large volumes of fine clay/silt; a dusting is the desired application rate.
- Application could be a temporary measure, if conditions change other treatment options may be considered.
- Areas chosen for application should be inspected at a later date to determine if reapplication is required (see SCAT OPS documentation records).

10. Light mechanical equipment use in the Riparian Zone

Objective

The equipment is required to identify the presence or absence, and degree of product, located in and under debris piles. The objective is to construct openings in these debris piles that allow viewing of the underlying woody substrate, and additionally, to view ground/water surfaces lying under those debris piles. If product is identified through this process, this equipment may or may not be appropriate for remediation of that product in those debris piles. The intent addressed by this equipment is not designed to include larger debris/pile removal.

Applicable/Designated Areas

The riparian areas referred to in this treatment method are those in low lying areas that are undisturbed by human activities and are currently in forested flats, wet meadows, emergent scrub/shrub and wetlands. Equipment use in riparian areas that are used for cropland or fields used for grazing, pasture or paddocks; residential land; or land that has been developed in some manner are covered in a separate approved treatment method (ATM 6).

Enactment Plan

- Areas with large debris piles where the use of light equipment may be applicable to meet the objective described above will be identified by the SCAT Team and communicated to the operations POC.

- After speaking with SCAT, operations POC along with the shoreline cleanup READ determine type of machinery that needs to be used within the constraints of 3 below. The POC will seek concurrence from Wildlife on the use of the equipment and ensure that flagging of any sensitive wildlife areas has been completed.
- Equipment may operate in riparian wetland areas that are free of standing water and should be operated in a manner that minimizes disruption of surface soil and vegetation.
- The use of machinery to achieve the objective described above will be restricted to light equipment with rubber tracks (not rubber tires) and less than 10,000 lbs operating weight (gross vehicle weight plus maximum capacity). John Deere 27D is an example of an appropriately sized piece of equipment which meets the requirements:

- Refer to Clean Woody Debris Distribution Guidelines.

See Addendum (Best Management Practices for Woody Debris Redistribution following Cleanup Operations, dated 8/18/2011) under ATM 3 above.

Decontamination

Equipment will be decontaminated as per standard operating procedures currently being utilized in the field. In addition, work area will be prepared to minimize contamination during operation.

SILVERTIP PIPELINE RELEASE

Approved Treatment Methods
Target Endpoints

24 August 2011

Silvertip Incident Qualitative Approved Treatment Methods Target Endpoints

Introduction

This Target Operational Endpoints document has been prepared for use by Shoreline Cleanup Assessment Technique (SCAT) teams to help evaluate when treatment activities by the Operations Section for the Silvertip Pipeline Release (Silvertip) oil spill response have been completed. These Target Operational Endpoints are based on standard spill response guidance and practices, oil spill cleanup documents, and experiences from other oil spills. They were developed with input from the federal, state, local and responsible parties involved in treatment activities.

The practical reasons and objectives for assigning qualitative Target Operational Endpoint are as follows.

- Define the conditions beyond which further active treatment is likely to provide no net environmental benefit and may delay, rather than accelerate, recovery of impacted habitats and natural resources;
- Define the target conditions that must be achieved before active treatment may cease, and resources and equipment may be demobilized or re-tasked. As such, these criteria signal the transition from active response-related cleanup to maintenance and monitoring, or final sign-off;
- Provide Operations with clear targets for when response-related treatment activities are done; and
- Provide SCAT Teams with criteria with which to evaluate results of treatment activities.

The SCAT process, though, does not include sampling and uses only qualitative operational endpoints to assess whether treatment activities have been completed. It is recognized that the State of Montana may have additional endpoint requirements, beyond the SCAT Target Operational Endpoints specified in this document, which may include quantitative sampling of surface water, soils, sediments and groundwater and comparison of results to applicable State standards. In some cases, as part of a longer term remediation and monitoring plan, further treatment and/or a period of monitoring (e.g., in cases where further cleanup may cause more harm than good) may be required to address State of Montana quantitative endpoints.

Approved Treatment Methods

To date, ten approved treatment methods (ATMs) have been accepted by Unified Command for reducing oiling, as follows:

1. Cutting oiled vegetation
2. Removing dead, oiled vegetation and small (<4 inches diameter) oiled woody debris
3. Cleaning large (>4 inches), oiled woody debris or other hard surfaces
4. Manually removing oiled (surface) sediment
5. Using sorbent boom, sweep, pads and snare to remove (surface deposited) oil
6. Removing oiled debris by using heavy equipment
7. Natural attenuation

8. Refer to Technical Advisory Group (TAG)
9. Treating with dust fixative (limited application)
10. Light mechanical equipment use in the riparian zone

Operational endpoints will help determine when use of the ATMs is complete.

> For this document, "pooled, mobile or recoverable "black oil" is defined as >1.0 cm thick oil cover that poses a threat as a secondary oiling source.
>
> Oil Coat is defined as oil thickness ≤0.1cm and >0.01cm. Oil Coat can be scratched off with fingernail on coarse sediments or rocks.
>
> Oil Stain is visible oil ≤0.01cm thick. Oil Stain cannot be scratched off easily on coarse sediments or rocks.

General Operational Endpoints

The following general Target Operational Endpoints are applicable to all riverine habitats:

- Oiled banks and structures shall be free of pooled, mobile or recoverable oil that is capable of being refloated when inundated
- Floating oil-coated debris shall be removed
- Oiling stain or sporadic coat may remain if it does not rub off on contact (residual oil not easily removed does not pose a significant contact hazard to wildlife because it does not wipe off on feathers or fur, and is not a source of persistent/chronic sheen)
- Depending on negotiations with individual landowners, additional treatment requirements may supplement Unified Command requirements; these cases will be coordinated by RP representatives
- Un-oiled debris, sediment and vegetation will be left in place

Additional-Habitat Specific Target Operational Endpoints

Table 1 lists habitat where SCAT surveys have found oiling. Habitat type is based on a combination of general habitat found along the River and primary bank type called out on SCAT's River Bank Oiling Summary Form. Table 1 also provides Habitat-Specific Operational Treatment Endpoints.

Segments as Related to Endpoints

Based on SCAT surveys, Compiled Treatment Recommendations (CTRs) were prepared to provide Operations with guidance on treatment and were subsequently adopted by Unified Command as formal direction to Operations on work to be completed in a given segment. The CTRs were developed by combining Operational Segments that use the same access and staging areas and (generally) have similar habitat. The Segments are broken down for treatment by "Zones" based on oil coverage ("heavy oil cover" to "no observed oil").

Once Target Operational Endpoints criteria are met in each Zone, treatment within the Segment will be considered complete.

Table 1: Correlation of Habitat-specific Target Operational Endpoints										
	Habitat									
Endpoint Criteria[1]	Man-Made Structures: Rip rap	Man-Made Structures: Industrial Area	Man-Made Structures: Residential Area and High Public Use	Man-Made Structures: Low Public Use	Cutbanks and Scarps	Exposed Sediment Bank and Flats	Uplands	Vegetated Banks	Wetlands	Woody Debris
Oil stains and coatings that do not rub off on contact may be allowed to weather and degrade.	X	X	X	X	X	X	X	X	X	X
Where treatment could exacerbate erosion, surface oil may be allowed to weather and degrade.					X			X		
Inaccessible oil stains and coating may be allowed to weather and degrade if removal is not readily feasible or unsafe.	X	X	X	X	X	X	X	X	X	X
Some very limited oil coating, treated per ATM No. 9 with local fine soils; oily coating does not rub off; left to weather and degrade.	X	X			X	X	X	X		X
Areas ranging up to light oiling coverage may be left to recover naturally if aggressive cleanup may cause long-term damage.				X	X	X	X	X	X	X

1. Depending on negotiations with individual landowners, treatment requirements may differ from Unified Command requirements; these cases will be coordinated by RP representatives.

TAG Review

Upon identification of a CTR by the US Coast Guard (USCG), Operations, or SCAT that may not be implementable or may do more harm than good in a segment, a request can be made to the TAG (via Approved Treatment Methods #8) to review CTR. Prior to a TAG request, the requestor should first try to resolve questions on the CTR with Operations and SCAT. A decision deadline must be included in the request. TAG will review the CTR to determine if an alternate approved treatment method is needed. Review can consist of evaluating pictures/video or visit to the field. Comments and recommendations will be documented on the attached TAG review form.

A CTR also may contain separate treatment stipulations and/or treatment activities agreed upon by a private landowner and the Responsible Party. These will be attached to the CTR as an addendum for reference during inspection by SCAT teams.

Inspecting, Tracking and Documenting Target Operational Endpoints

Endpoint criteria will be visually observed and assessed by using the same SCAT methodology and terminology used in SCAT oiling surveys.

- Informal pre-inspection. After Operations treatment activities are complete, the SCAT Ops Liaison will first perform an informal Segment and CTR inspection. The SCAT Ops Liaison will either recommend additional treatment or notify the SCAT Coordinator that treatment appears to be complete.

- Post-Operations SCAT assessment. If treatment is considered complete by the SCAT Ops Liaison, a SCAT team will then perform a formal post-Operations SCAT assessment. In the case of public lands, the SCAT team must include a representative of the managing agency. The SCAT team will either:
    - recommend additional treatment; or
    - determine that treatment per the CTR is complete; or
    - determine no further treatment (NFT) should be performed because further action would cause potential greater harm.

For consistency, results will be documented, by Operational Segment, on the River Bank Oiling Summary Form which is similar to the original summary forms (see attached copy).

TAG Request / Review Form

US Coast Guard Request for Review
Names _____

Request Details:

TAG Review

Group Member Names _____

Review Details:

EPA -

Montana DEQ -

Responsible Party

DNRC

Montana FWS

Unified Command Approval:

_____ _____
Federal On-Scene Coordinator Date

_____ _____
State On-Site Coordinator Date

_____ _____
ExxonMobil Incident Commander Date

RIVER BANK OILING SUMMARY FORM for Silvertip Pipeline Incident Page _____ of _____

1 GENERAL INFORMATION		Date (dd/mm/yy)	Time (24h): std / daylight	Water Level
Segment/Reach ID:	Left Bank / Right Bank / Island			low - mean - bankfull - overbank
Operations Division:			_____ hrs to _____ hrs	falling - steady – rising
Survey by:	Foot / ATV / Boat / Helicopter / Overlook / _____	Sun / Clouds / Fog / Rain / Snow / Windy / Calm		Air Temp + / - ____ deg C

2 SURVEY TEAM # _____	Name	Organization	Signature

3 SEGMENT *Total Segment/Reach Length* _____ *m* *Segment/Reach Length Surveyed* _____ *m*

Start GPS: LATITUDE _____deg. _____min. LONGITUDE _____deg. _____min. ***Datum:***_____

End GPS: LATITUDE _____deg. _____min. LONGITUDE _____deg. _____min.

4A RIVER BANK TYPE ***SELECT only one primary (P) shoreline type and any number of secondary (S) types. CIRCLE those OILED***

Bedrock: Cliff/Ramp_____ Shelf_____	***Manmade:*** Solid___ Permeable___ (type)_____	***Wetland:*** Swamp_____ Bog/Fen_____ Marsh _____	
Sediment Bank: Clay/Mud_____ Sand_____ Mixed_____ Pebble/Cobble_____ Boulder_____ Peat/Organic_____		***Vegetated Bank:***_____	***Wooded Upland:*** ____
Sediment Flat: Clay/Mud_____ Sand_____ Mixed/Coarse_____	***Other:*** _____	If snow and ice use Winter River SOS	

4B RIVER VALLEY CHARACTER ***select as appropriate*** ***complete for primary***

Cliff or Bluff:___Est Height _____m	canyon_____	manmade_____	meander ____	confined or leveed _____	Substrate Type: _____
Sloped:___(>5°)(15°)(30°)	straight_____	braided _____	oxbow_____	flood plain valley_____	Forested / Vegetated / Bare

4C RIVER CHANNEL CHARACTER ***circle or select as appropriate***

est. width : < 1m 1–10 m 10–100 m >100m **est. water depth :** <1 m 1-3 m 3-10 m >10 m ____ m

shoal(s) present Y / N **point bar present** Y / N **bar-shoal substrate :** silt / sand / gravel / cobble / boulder / bedrock / debris

seasonal water level: low / mean / bank full / overbank flow **est. change over next 7 days :** falling — same — rising

5 OPERATIONAL FEATURES Suitable backshore staging Y / N **Access**: Direct from backshore Y / N Alongshore from next segment Y / N

Debris: Y / N oiled Y / N amount _____bags or _____trucks access restrictions

Oiled trees/shrubs Y / N River Current strong Y / N Other Features:

6 SURFACE OILING CONDITIONS ***begin with "A" in the lowest tidal zone - circle the zone/s that correspond to primary shoreline type***

OIL ZONE ID	RIVER BANK ZONE				OIL COVER			OIL THICKNESS					OIL CHARACTER								SUBST. TYPE(S)
					Length	*Width*	*Distrib.*														
	MS	LB	UB	OB	m	m	%	TO	CV	CT	ST	FL	FR	MS	TB	PT	TC	SR	AP	NO	
A																					

7 SUBSURFACE OILING CONDITIONS ***use letter for ZONE location plus Number of pit or trench — e.g., "A1"***

TRENCH or PIT NO.	RIVER BANK ZONE				MAX. PIT DEPTH	OILED ZONE	SUBSURFACE OIL CHARACTER							WATER TABLE	SHEEN COLOUR	CLEAN BELOW	SUBST. TYPE(S)
	MS	LB	UB	OB	cm	cm-cm	SAP	OP	PP	OR	OF	TR	NO	cm	B, R, S, N	Yes / No	

8 COMMENTS ***ecological/recreational/cultural/economic constraints - shorezone biota and wildlife observations - cleanup recommendations***

Overbank Survey Required Y / N Overbank Survey Completed Y / N Shoreline Survey Completed Y / N

Sketch Yes / No **Photos** Yes / No **Frames/Photographer**:_____